

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

FORM APPROVED
OMB NO. 40-R3822

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

INSTRUCTIONS: See Reverse.

1a. TEMPORARY DESIGNATION OF VARIETY BFP-78-63		1b. VARIETY NAME Columbia		FOR OFFICIAL USE ONLY PV NUMBER 8300106	
2. KIND NAME Barley		3. GENUS AND SPECIES NAME <u>Hordeum vulgare</u>		FILING DATE 4/5/83	TIME 1:00 P.M.
4. FAMILY NAME (BOTANICAL) Gramineae		5. DATE OF DETERMINATION 5-1-81		FEE RECEIVED \$ 1,000 \$ 500.00	DATE 4/5/83 4/1/85
6. NAME OF APPLICANT(S) WPB ACQUISITION INC. Western Plant Breeders, Inc. WESTERN PLANT BREEDERS, INC. Camary (and Corporation)		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P.O. Box 1110 1918 W. VanBuren Phoenix, Arizona 85001 ATT.: MR. ROBERT HUNTINGTON		8. TELEPHONE AREA CODE AND NUMBER 602-257-1223	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Corporation		10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION Arizona, Dec. 1, 1977		11. DATE OF INCORPORATION Dec. 1, 1977	
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: Dale R. Clark or Rob Huntington P.O. Box 1110 Phoenix, Arizona 85001 P.O. Box 1409, BOZEMAN, MONTANA 59715					

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Novelty Statement.
- ☒ 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- ☐ 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☒ YES ☐ NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☒ NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? ☐ YES ☒ NO (If "Yes," give name of countries and dates.)

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☒ YES ☐ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

March 18, 1983
(DATE)

March 18, 1983
(DATE)

Dale R. Clark
(SIGNATURE OF APPLICANT)

[Signature]
(SIGNATURE OF APPLICANT)

3010068

13a.

Columbia is a six-rowed, spring barley that was selected in the spring of 1977 as a single F_2 plant from the cross Gus X Kombar. An F_3 row was grown at Conrad, Montana in the summer of 1977 and a single plant selection from this row was grown as an F_4 plot at Chandler, Arizona in the spring of 1978. Twenty heads were selected from the F_4 plot and F_5 head rows were grown at Conrad, Montana in the summer of 1978. Uniform head rows were harvested and bulked with the experimental designation BFP-78-63. The resulting F_6 bulk and the successive F_7 and F_8 bulks were yield tested throughout the irrigated areas of Arizona, California, Idaho, Montana, and Utah in 1979, 1980, and 1981. 200 heads were selected from the F_7 bulk in 1980 and grown as head rows at Chandler, Arizona in the spring of 1981. Uniform rows were harvested and bulked. This seed was used to plant one acre near Scottsdale, Arizona in the fall of 1981. The resulting production was cut as Breeder's Seed in the spring of 1982 and designated as the variety Columbia.

Columbia is a stable and uniform variety in agronomic appearance and performance across several generations and growing conditions. Agronomic data to support stability is presented in the tables.

8300106

13b.

Columbia is a semi-dwarf, six-rowed, spring barley. Columbia is most similar in phenotypic appearance to the variety Kombar. However the aleurone color of Columbia is blue where as the aleurone color of Kombar is white. Columbia is also resistant to the present races of net blotch (pyrenophora teres) in California where as Kombar is susceptible.

8300108

OBJECTIVE DESCRIPTION OF VARIETY
BARLEY (*HORDEUM VULGARE*)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Western Plant Breeders, Inc.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)
P.O. Box 1110

Phoenix, Arizona 85001

FOR OFFICIAL USE ONLY

PVPO NUMBER

8300106

VARIETY NAME OR TEMPORARY
DESIGNATION

Columbia

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (i.e. or) when number is either 99 or less or 9 or less.

1. GROWTH HABIT:

1 = SPRING 2 = FACULTATIVE WINTER 3 = WINTER Early Growth: 1 = PROSTRATE 2 = SEMIPROSTRATE
3 = ERECT

2. MATURITY (50% Flowering):

1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes) 3 = LATE (Frontier)

No. of days Earlier than } 1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON
 No. of days Later than } 5 = PIROLINE 6 = PRIMUS 7 = UNITAN

3. PLANT HEIGHT (From soil level to top of head):

1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = MEDIUM TALL (Betzes) 4 = TALL (Conquest)

Cm. Shorter than } 1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON
 Cm. Taller than } 5 = PIROLINE 6 = PRIMUS 7 = UNITAN
x=taller than none

4. STEM:

Exertion (Flag to spike at maturity): 1 = 0 - 3 cm. 2 = 3 - 10 cm. Anthocyanin: 1 = ABSENT 2 = PRESENT
3 = 10 - 15 cm.

NO. OF NODES (Originating from node above ground)

Collar Shape: 1 = CLOSED 2 = V-SHAPED 3 = OPEN Shape of Neck: 1 = STRAIGHT 2 = SNAKY
4 = MODIFIED CLOSED OR OPEN 3 = OTHER (Specify)

5. LEAF:

Basal leaf sheath (seedling): 1 = GLABROUS 2 = PUBESCENT Position of flag leaf (at boot stage): 1 = DROOPING
2 = UPRIGHT

Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY
3 = WAXY

MM. WIDTH (First leaf below flag leaf)

CM. LENGTH (First leaf below flag leaf)

Anthocyanin in leaf sheath: 1 = ABSENT 2 = PRESENT

6. HEAD:

Type: 1 = TWO-ROWED 2 = SIX-ROWED Density: 1 = LAX 2 = ERECT (Not dense)
3 = ERECT (Dense)

Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE
4 = OTHER (Specify)

Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY
3 = WAXY

Lateral Kernels Overlap: 1 = NONE 2 = AT TIP
3 = 1/4 - 1/2 OF HEAD

Rachis (Hair on edge): 1 = LACKING 2 = FEW 3 = COVERED

7. GLUME:

Length: 1 = 1/3 OF LEMMA 2 = 1/2 OF LEMMA
3 = MORE THAN 1/2 OF LEMMA

Hairs: 1 = NONE 2 = SHORT 3 = LONG

Hair covering: 1 = NONE 2 = RESTRICTED TO MIDDLE 3 = CONFINED TO BAND 4 = COMPLETELY COVERED

Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 2 = EQUAL TO LENGTH OF GLUMES
3 = MORE THAN EQUAL TO LENGTH OF GLUMES

Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

8300108

8. LEMMA:

Awn: 1 = AWNLESS 2 = AWNLETS ON CENTRAL ROWS, AWNLESS ON LATERAL ROWS
 3 = SHORT ON CENTRAL ROWS, AWNLETS ON LATERAL ROWS 4 = SHORT (less than equal to length of spike)
 5 = LONG (longer than spike) 6 = HOODED

Awn Surface: 0 = AWNLESS 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

Teeth: 1 = ABSENT 2 = FEW 3 = NUMEROUS Hair: 1 = ABSENT 2 = PRESENT

Shape of base: 1 = DEPRESSION 2 = SLIGHT CREASE 3 = TRANSVERSE CREASE Rachilla Hairs: 1 = SHORT 2 = LONG

9. STIGMA:

Hairs: 1 = FEW 2 = MANY

10. SEED:

Type: 1 = NAKED 2 = COVERED Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT

Length: 1 = SHORT (8.0 mm.) 2 = SHORT TO MIDLONG (7.5 - 9.0 mm.) 3 = MIDLONG (8.5 - 9.5 mm.)
 4 = MIDLONG TO LONG (9.0 - 10.5 mm.) 5 = LONG (10.0 mm.)

Wrinkling of hull: 1 = NAKED 2 = SLIGHTLY WRINKLED 3 = SEMIWRINKLED 4 = WRINKLED

Aleurone Color: 1 = COLORLESS (White or Yellow) 2 = BLUE

PERCENT ABORTIVE GMS. PER 1000 SEEDS

11. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

<input type="text" value="0"/> SEPTORIA	<input type="text" value="2"/> NET BLOTCH	<input type="text" value="0"/> SPOT BLOTCH	<input type="text" value="2"/> POWDERY MILDEW
<input type="text" value="1"/> LOOSE SMUT	<input type="text" value="1"/> BACTERIAL BLIGHT	<input type="text" value="0"/> COVERED SMUT	<input type="text" value="1"/> FALSE LOOSE SMUT
<input type="text" value="0"/> STEM RUST	<input type="text" value="2"/> LEAF RUST	<input type="text" value="0"/> SCAB	<input type="text" value="2"/> SCALD
<input type="text" value="0"/> AY	<input type="text" value="0"/> BSMV	<input type="text" value="1"/> BYDV	<input type="text" value="0"/> OTHER (Specify)

12. INSECT: (0 = Not tested, 1 = Susceptible 2 = Resistant)

<input type="text" value="0"/> GREEN BUG	<input type="text" value="0"/> ENGLISH GRAIN APHID	<input type="text" value="0"/> CHINCH BUG	<input type="text" value="0"/> ARMYWORM
<input type="text" value="0"/> GRASS HOPPERS	<input type="text" value="0"/> CERIAL LEAF BETTLE	<input type="text" value="0"/> OTHER (Specify) _____	
HESSIAN FLY RACES		<input type="text" value="0"/> GP	<input type="text" value="0"/> A
		<input type="text" value="0"/> B	<input type="text" value="0"/> C
		<input type="text" value="0"/> D	<input type="text" value="0"/> E
		<input type="text" value="0"/> F	<input type="text" value="0"/> G

13. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

DDT OTHER (Specify) _____

14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Gus or Kombar	Seed size	Gus
Leaf size	Gus	Coleoptile elongation	Gus
Leaf color	Kombar	Seedling pigmentation	Gus
Leaf carriage	Gus		

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

1. Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
2. Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61 - 84.
3. Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

COLOR: Nickerson's or any recognized color fan may be used to determine color of the described variety.

STATE OF ARIZONA)
) ss.
County of Maricopa)

ASSIGNMENT

WHEREAS, WESTERN PLANT BREEDERS, INC., an Arizona corporation (a/k/a) WESTERN PLANT BREEDERS), having its principal place of business at Phoenix, Arizona, has adopted, used and is using the following Certificate of Protection which is registered in the Plant Variety Protection Office of the Secretary of Agriculture:

Certificate No. 8300106 Columbia Barley

WHEREAS, WPB ACQUISITION INC., a Maryland corporation, having its principal place of business in Hayward, California, is desirous of acquiring said Plant Variety Protection Certificate; and

WHEREAS, WESTERN PLANT BREEDERS, INC., states that it has title to the above Certificate and that this transfer does not violate any applicable ruling or order of any court or agency of competent jurisdiction.

NOW, THEREFORE, for valuable consideration, receipt of which is hereby acknowledged, WESTERN PLANT BREEDERS, INC. does hereby assign and set over to WPB ACQUISITION INC., all of the right, title and interest of WESTERN PLANT BREEDERS, INC., in and to the variety of barley named:

"Columbia"

together with all goodwill associated with that variety and that name, and together with all rights under and to that Certificate of Plant Variety Protection, No. 8300106, issued by the Secretary of Agriculture of the United States of America on April 26, 1985.

WESTERN PLANT BREEDERS, INC.

By Albert E. Carleton
Albert E. Carleton, President

On this 30th day of September, 1985, before me, appeared Albert E. Carleton, to me personally known, who, being by me duly sworn, did say that he is the president of WESTERN PLANT BREEDERS, INC., an Arizona corporation, and that the foregoing Assignment is on behalf of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal at my office in Phoenix, Arizona the day and year last above written.

George M. Belter aka George M. Smith
Notary Public

My Commission Expires:

November 3, 1986

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OCT 8 1985



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